UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,481	03/26/2004	George G. Mueller	C1104.70082US02	9785

23628 7590 11/16/2006

WOLF GREENFIELD & SACKS, PC
FEDERAL RESERVE PLAZA
600 ATLANTIC AVENUE
BOSTON, MA 02210-2206

EXAMINER	
PHILOGENE, HAISSA	

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

10

Office Action Summary	Application No.	Applicant(s)	
	10/810,481	MUELLER ET AL.	
	Examiner	Art Unit	
	Haissa Philogene	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-135* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *105,109,113,115,117,122,126,131 and 135* is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☒ Claim(s) *7-9,16-18,23-25,30-32,43-45,53-55,65-67,74-76,90-92 and 102-104* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/7/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 10, 12-15, 19-22, 26-29, 33, 46-52, 56, 68-73, 77-79, 84-89, 93-101, 106-108, 110-112, 114, 116, 123-125 and 132-134 are rejected under 35 U.S.C. 102(e) as being anticipated by Turnbull et al., Patent No. 5,803,579.

As per claims 1 and 10, Turnbull discloses in Figs. 13 and 21 an illumination apparatus and method, comprising: a first number of first light sources (D1-D3) adapted to generate first radiation having a first spectrum (584 nm amber LED) ; a second number of second light sources (D4-D5) adapted to generate second radiation having a second spectrum (483 nm blue-green LED) different from the first spectrum, wherein the first number and the second number are different: and at least one structure or diffuser (29) (see Figs. 1 and 2) coupled to the first number of first light sources and the second number of second light sources so as to facilitate a mixing of the first radiation and the second radiation, i.e., between Hue 2 and hue 5 (see Fig.13), wherein the apparatus is configured to provide ambient illumination including visible radiation in an environment to be occupied by an observer of the ambient illumination, the visible

radiation including at least one of the first radiation and the second radiation (see Col.31, lines 33-54).

As per claims 2, 12, 48, 84 and 97, Turnbull further discloses in Fig.21 at least one controller (U1) coupled to the first number of first light sources and the second number of second light sources via constant current sources Q1Q2 and Q3Q4, respectively, and configured to independently control at least a first intensity of the first radiation and a second intensity of the second radiation so as to controllably vary at least an overall perceivable color of the visible radiation generated by the illumination apparatus (see Col.31, lines 16-26 and Col.32, lines 24-40).

As per claims 3-6, 13-15, 52, 73 and 101, Turnbull discloses the at least one controller(U1) being configured to generate a first control signal via Port 0 to control all of the first light sources substantially identically, and a second control signal via port 1 to control all of the second light sources substantially identically; wherein the at least one controller U1 is configured to independently control at least the first intensity of the first radiation and the second intensity of the second radiation using a pulse width modulation (PWM) technique (see Col.31, lines 16-26 and Col.32, lines 24-44 and 63-65), and wherein said control signals are capable of being PWM control signals (see also Fig.21)., and wherein each light source of the first and second light sources is an LED (see Fig.21).

As per claims 106, 107, 110 and 111, Turnbull discloses the at least one controller (U1) being configured to control the first light sources D1-D3 and the second light sources D4-D5 irrespective of a motion of any object in the environment to be

occupied by the observer or any imaging of the ambient illumination during daytime and nighttime.

As per claims 33 and 46, Turnbull discloses the claimed invention substantially as explained above. Further, Turnbull discloses the overall perceivable color of visible radiation being white (see abstract).

As per claims 47, 51, 69, 72, 96 and 100, Turnbull discloses in Fig.1 the first and second light sources (14) being arranged as a package including at least one of a housing (19) and a mounting (12) and a step of engaging the package mechanically and electrically via lead frame (17) with a conventional light socket (as shown) (see Col.11, lines 1-10) and a step of communicating at least one control signal from electronic circuit (22) to the package (14).

As per claims 49, 50, 70, 71, 98 and 99, Turnbull discloses in Fig.21 the steps of adjusting and controlling the overall perceived color of the visible radiation (white) via controller U1 and user interface U2 and in response to at least one detectable condition by temperature sensor TH1.

As per claims 19-22, 26-29, 79 and 93-95, Turnbull discloses the claimed invention substantially as explained in claims 1-4 and 6 above. Further, Turnbull further discloses in Fig.2 an essentially inflexible planar substrate (12) on which all of the first and second light sources are mounted (see also Col.11, lines 59-66).

As per claims 56 and 68, Turnbull discloses the claimed invention substantially as explained above. Further, Turnbull discloses the overall perceivable color of visible radiation being white (see abstract).

As per claims 77 and 78, Turnbull discloses the claimed invention substantially as explained in claims 19 and 56 above.

As per claims 85-89, Turnbull discloses at least one user interface U2 coupled to the at least one controller U1 and configured to facilitate an adjustment of the overall perceivable color of the visible radiation (white by varying the amount light in the light sources. Further, Turnbull discloses at least one sensor TH1 coupled to the at least one controller U1 and configured to generate at least one control signal via ports 0 and 1 in response to at least one detectable condition by sensor TH1, and said sensor TH1 being readable as a transmitter; wherein the at least one controller U1 is configured to independently control at least the first intensity of the first radiation and the second intensity of the second radiation using a pulse width modulation (PWM) technique (see Col.31, lines 16-26 and Col.32, lines 24-44 and 63-65). Turnbull discloses the at least one controller(U1) being configured to generate a first PWM control signal via Port 0 to control all of the first light sources substantially identically, and a second PWM control signal via port 1 to control all of the second light sources substantially identically; (see Col.31, lines 16-26 and Col.32, lines 24-44 and 63-65).

As per claims 108, 112, 114, 116, 123-125, 132-134, Turnbull discloses the claimed invention substantially as explained above. In addition, Turnbull discloses the overall perceivable color capable of being other colors such as a slightly different white (see Col.32, line 43).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 34-42, 57-64, 80-83, 118-121 and 127-130 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turnbull et al. in view of Okuno, Patent No. 4,298,869.

As per claims 34, 57 and 80, Turnbull discloses the claimed invention substantially as explained above except for at least one power connection coupled to the at least one controller configured to engage mechanically and electrically with the conventional light socket. Okuno discloses in Figs.5A and 5B an illumination apparatus having at least one power connection or lamp base (10) coupled to the at least one controller (13) configured to engage mechanically and electrically with a conventional light socket. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to employ the power connection as taught Okuno into the Turnbull type apparatus, because it would allow a LED display device which be used in a conventional colored light-emitting display device using incandescent lamps, without requiring modification of the structure.

As per claims 35-37, 58-60 and 81-83, Turnbull in view of Okuno discloses the claimed invention substantially as explained above. Okuno further discloses the at least power connection (10) including an Edison screw-type power connection (as shown in

Fig. 5A), wherein the apparatus (Fig.5A) is configured to resemble at least one type of conventional light bulb being incandescent lamp and comprises a housing (15) configured to resemble an Edison-mount light bulb housing (as shown).

As per claim 38, Turnbull in view of Okuno discloses the claimed invention substantially as explained above. Further, Turnbull discloses in Fig.21 at least one controller (U1) configured to independently control at least a first intensity of the first radiation and a second intensity of the second radiation so as to controllably vary at least an overall perceivable color of the visible radiation generated by the illumination apparatus (see Col.31, lines 16-26 and Col.32, lines 24-40).

As per claims 39 and 61, Turnbull in view of Okuno discloses the claimed invention substantially as explained above. Further, Turnbull discloses at least one user interface U2 coupled to the at least one controller U1 and configured to facilitate an adjustment of the overall perceivable color of the visible radiation (white by varying the amount light in the light sources.

As per claims 62-64, Turnbull in view of Okuno discloses the claimed invention substantially as explained above. Further, Turnbull discloses at least one sensor TH1 coupled to the at least one controller U1 and configured to generate at least one control signal via ports 0 and 1 in response to at least one detectable condition by sensor TH1, and said sensor TH1 being readable as a transmitter; wherein the at least one controller U1 is configured to independently control at least the first intensity of the first radiation and the second intensity of the second radiation using a pulse width modulation (PWM) technique (see Col.31, lines 16-26 and Col.32, lines 24-44 and 63-65).

As per claims 118-121 and 127-130, Turnbull discloses the claimed invention substantially as explained above except for at least one power connection coupled to the at least one controller configured to engage mechanically and electrically with the conventional light socket. Okuno discloses in Figs.5A and 5B an illumination apparatus having at least one power connection or lamp base (10) coupled to the at least one controller (13) configured to engage mechanically and electrically with a conventional light socket. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to employ the power connection as taught Okuno into the Turnbull type apparatus, because it would allow a LED display device which be used in a conventional colored light-emitting display device using incandescent lamps, without requiring modification of the structure.

Allowable Subject Matter

Claims 7-9, 43-45, 16-18, 53-55, 23-25, 65-67, 30-32, 74-76, 90-92, 102-104 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 105, 109, 113, 115, 117, 122, 126, 131 and 135 are allowed.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Haissa Philogene whose telephone number is (571) 272-1827. The examiner can normally be reached on 8:30 A.M.-6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571)272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

hp

Haissa Philogene
Primary Examiner
A.U. 2821

Continuation of Disposition of Claims: Claims rejected are 1-6,10,12-15,19-22,26-29,33-42,46-52,56-64,68-73,77-89,93-101,106-108,110-112,114,116,118-121,123-125,127-130 and 132-134.